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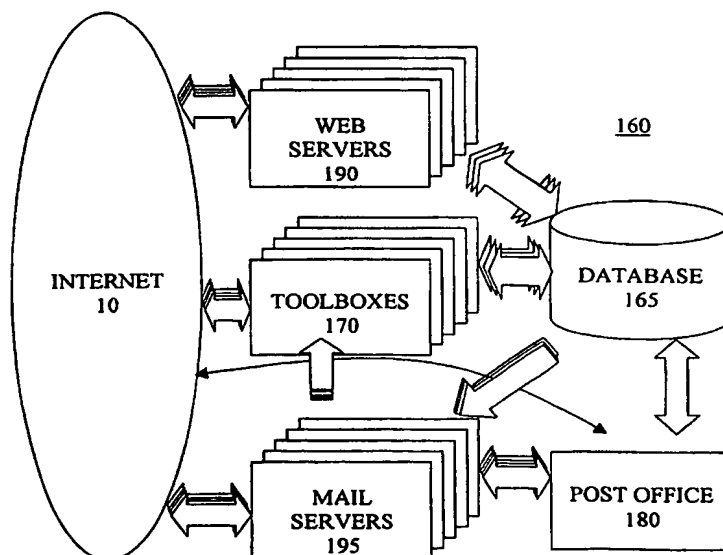
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|  |  |   |   |
|--|--|---|---|
| (51) International Patent Classification <sup>7</sup> :<br><b>G06F 17/60</b>   |  | <b>A2</b>   | (11) International Publication Number:<br><b>WO 00/42557</b>    |
|  |  |   | (43) International Publication Date:<br>20 July 2000 (20.07.00) |
| (21) International Application Number: PCT/US00/00960<br>(22) International Filing Date: 14 January 2000 (14.01.00)<br>(30) Priority Data:<br>09/232,879                      15 January 1999 (15.01.99)                      US<br>(71) Applicant: MYPOINTS.COM, INC. [US/US]; 11th floor, 100 California Street, San Francisco, CA 94111 (US).<br>(72) Inventors: BISTRICEANU, Virgil; 10 West 31st Street, Chicago, IL 60616 (US). MINOGUE, Matthew, S.; 1418 Division Street, Apartment Storefrone, Chicago, IL 60622 (US).<br>(74) Agents: JAKOPIN, David, A. et al.; Pillsbury Madison & Sutro LLP, 1100 New York Avenue, N.W., Washington, DC 20005 (US). |  | (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>Without international search report and to be republished upon receipt of that report.</i> |   |

(54) Title: SYSTEM AND METHOD FOR HIGH VOLUME SELECTIVE GENERATION AND DELIVERY OF CUSTOMIZABLE ELECTRONIC MESSAGES



## (57) Abstract

The above objects are achieved according to an aspect of the invention by providing an electronic communication system which delivers electronic messages such as e-mail messages and web pages over the Internet. An issuer wishing to generate and deliver such messages creates a set of rules which specify criteria for selecting message recipients and criteria for rewarding the recipients for receiving or acting on the messages. Depending on data corresponding to each consumer, the messages may be served as web pages by multiple web servers or sent as e-mail messages to the consumers. Acknowledgement of receipt of the messages by the consumers may be done by e-mail or using an HTTP protocol.

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SYSTEM AND METHOD FOR  
HIGH VOLUME SELECTIVE GENERATION AND DELIVERY OF  
CUSTOMIZABLE ELECTRONIC MESSAGES

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to electronic communication systems and, more particularly, to online incentive award services which compensate consumers who use the services for viewing advertisements and similar information provided by the services or advertisers.

2. Description of Related Art

FIG. 1 shows a typical online incentive award service. Such systems are typically implemented on a distributed communication network such as the Internet 10 and provide an online environment in which consumers 20 are rewarded for performing various actions after enrolling in the service via an enrollment function 50 which is part of an overall communication service 60 operated by the online incentive award service. Issuers 30 are typically companies offering a product or service who wish to influence the behavior of consumers 20 by offering to reward them for receiving information about the products and services. Usually, the actions which are rewarded are, e.g., viewing an e-mail advertisement sent to them by the incentive service on behalf of an issuer 30 or visiting a web page describing the issuer's product. Additional points may be awarded when, e.g., the consumer 20 participates in a survey, accepts a trial offer of the issuer's product or buys the issuer's product. An example of an incentive award service of the first type is the BonusMail® service operated by Intellipost Corporation of San Francisco, California, and an example of an incentive award service of the second type is the MyPoints® service also operated by the same company. Another example of an incentive award service is found in the above-referenced United States Patent Application No. 09/080,946 to Bistriceanu et al., incorporated herein by reference. The reward may be in the form of points which are accrued by the consumers 20 and later redeemed via a redeemer 40 for merchandise or other valuable material.

Between the time when a consumer 20 enrolls in the incentive award service using enrollment function 50 and the time when she redeems accrued points with redeemer 40, she must be given the opportunity to earn the points by receiving e-mailed advertisements (in the case of BonusMail®) or viewing designated web pages (in the case of MyPoints®) generated by communication service 60. In the case of e-mail advertisements, it is necessary to generate and send individual advertisements to each consumer 20; in the case of web-based offers, it is necessary to generate and make available appropriate web pages for each consumer 20. In the following, the term "earning invitation" will be used to refer to the mechanism by which consumer 20 are provided with the opportunity to earn award points; thus, in the case of the BonusMail® service, an earning invitation is an e-mail message advertising an issuer's product, and in the case of the MyPoints® service, an earning invitation is a web page a consumer 20 may view to learn about the issuer's product.

Although a workable incentive award service can be implemented using a generic earning invitation, the service is more effective if the earning invitation can be customized for each consumer 20. For example, the invitation may be customized to refer to the consumer by name, or might refer to his geographic location or the like. Further, earning invitations can be tailored to each consumer's computer system; for example, e-mail messages may be configured as plain text messages or HTML formatted messages based on previously-collected information about the consumer's computer system capabilities. Similarly, web pages may be customized depending on whether the consumer's browser is graphics-capable, frames-capable, Java-capable, etc. Further, both e-mails and web pages can be customized based on demographic profiles of their intended recipients.

Perhaps more importantly, the effectiveness of the incentive award service is greatly enhanced if the earning invitations are targeted for particular consumers 20. This may be done, e.g., on the basis of demographic information concerning the consumer 20 which was collected when she enrolled in the incentive award service. For example, when enrolling in the BonusMail® service a consumer 20 answers a number of questions about her hobbies, likes and dislikes, etc. Then, if an issuer 30 wishes to advertise, e.g., computer peripherals, earning invitations may be sent to only those consumers 20 who have indicated an interest in personal computing. This demographic targeting is advantageous in several ways. For example, the average response rate to each earning invitation is increased, thereby allowing the incentive award system to use fewer resources to achieve the same results. Further, consumers 20 receive earning invitations which are more likely to be useful to them, and their perceived utility of the incentive award service consequently increases.

Implementing this level of customization, selectivity and variety in earning invitations requires a sophisticated methodology for invitation generation and delivery. One possibility is, given a prototype earning invitation and a set of criteria describing the consumers 20 to which it should be sent, to traverse a master list of enrolled consumers 20 and store identifiers (as well as any other information needed for the degree of customization designated by the invitation prototype) for each enrolled consumer 20 meeting the criteria in a file. The file can then be merged with the earning invitation prototype to generate a batch of customized invitations which can be delivered to the targeted consumers 20.

Although this process is workable, by its nature it requires that invitation generation and delivery be done in a centralized, sequential, batch-oriented manner. Should some component of the incentive award service fail, it is likely to hamper the operation of the other system components. Further, to expand such a system it is necessary to upgrade the entire system, rather than simply adding additional computer equipment to provide an incremental increase in capabilities. Also, although current technologies permit the use of varying protocols and message delivery techniques such as "client push" (an example being e-mail, where information is sent to the receiver without prior action) and "client pull" (an example being serving web pages, where no information is sent to the receiver until he requests it). This limits the flexibility and power of the system.

### SUMMARY OF THE INVENTION

The present invention overcomes the above disadvantages of the prior art and has an object of providing a system which can selectively generate and deliver a high volume of electronic messages over a communication network to a given receiver population.

5 It is a further object of the present invention to provide such a system which can generate and deliver messages over varying protocols.

It is still a further object of the present invention to provide such a system which can generate and deliver messages over at least SMTP and HTTP protocols.

10 It is yet another object of the present invention to provide such a system which can selectively generate and deliver electronic messages according to multiple sets of generation and delivery criteria, where each set of criteria is processed independently of the others.

It is still another object of the present invention to provide such a message delivery system which can deliver messages to recipients using both "client push" and "client pull" technologies.

15 The above objects are achieved according to an aspect of the invention by providing an electronic communication system which delivers electronic messages such as e-mail messages and web pages over the Internet. An issuer wishing to generate and deliver such messages creates a set of rules which specify criteria for selecting message recipients and criteria for rewarding the recipients for receiving or acting on the messages. Depending on data corresponding to each consumer, the messages may be served as web pages by multiple web servers or sent as e-mail messages to the  
20 consumers. Acknowledgement of receipt of the messages by the consumers may be done by e-mail or using an HTTP protocol.

### BRIEF DESCRIPTION OF THE DRAWINGS

25 The above and other objects of the invention will become readily apparent after reading and understanding the specification and claims in conjunction with the appended drawings in which:

FIGURE 1 is a block diagram of an online incentive award system;

FIGURE 2 is a diagram of a communication service according to a preferred embodiment of the present invention;

FIGURE 3 is a diagram of the post office shown in FIG. 2;

30 FIGURE 4 shows an entry in a control table in the post office database shown in FIG. 3;

FIGURE 5 shows an entry in a message table in the post office database shown in FIG. 3;

FIGURE 6 shows an entry in a client mail table in the post office database shown in FIG. 3;

FIGURE 7 is a diagram of a toolbox shown in FIG. 2;

FIGURE 8 is a diagram of a mail server shown in FIG. 2; and

35 FIGURE 9 is a sample HTML-formatted e-mail earning invitation according to the preferred embodiment.

DETAILED DESCRIPTION OF THE  
PRESENTLY PREFERRED EXEMPLARY EMBODIMENTS

At its most general level, a preferred embodiment of the present invention implemented in an incentive award service is similar to that shown in FIG. 1. However, while FIG. 1 shows that the enrollment function 50, the redeemer 40, and the communication service 60 are logically separate from one another, this is done merely for ease of understanding, and in a preferred embodiment of the present invention the corresponding components may be independent processes running on the same physical computer. Also, although the Figure shows only one enrollment function 50, one communication service 60, etc., it is possible that multiple systems are used for one or more of the corresponding components in a preferred embodiment of the present invention. Also, it is preferable that the system include multiple issuers 30 and multiple redeemers 40 to maximize the system's utility to the user.

FIG. 2 shows the organization of a communication service 160 according to a preferred embodiment of the present invention. Here, a database 165 contains information about enrolled consumers 20 (or, more broadly, users or clients) including any demographic information necessary for targeted web page serving and for targeted e-mail delivery. This information has been previously stored in the database by, e.g., an enrollment system (not shown). The database 165 also preferably stores information related to each consumer's account on the incentive award service such as points accrued and transaction history.

An advantage of the present invention is that the system can selectively, scalably and easily deliver electronic messages including both web pages and e-mails to users. To serve web pages, the system largely operates as described in the above-referenced U.S. patent application to Bistriceanu et al., and for ease of explanation the following discussion will focus primarily on the post office 180 and mail servers 195 and the aspects of the other system components which play a significant role in the generation and delivery of e-mail messages.

Once consumers 20 have enrolled in the incentive award service, the first step in providing an award earning opportunity is for an issuer 30 to commission the incentive award service to conduct a marketing campaign. Should this campaign include e-mail earning invitations sent to consumers 20, the incentive award service will create an entry 216 in a control table stored in a post office database 184 in the post office 180 as shown in FIGS. 3 and 4. The control table entry 216 includes a job key 216a which identifies the job, i.e., marketing campaign, to which the entry corresponds; a start date 216b and a stop date 216c which respectively specify the date from which earning invitation related to the campaign may be sent to consumers 20 and the date after which no points may be awarded to consumers 20 in connection with the campaign; a client count 216d which specifies the number of consumers 20 to which e-mail earning invitations will be sent; a suspend flag 216e which specifies that the job is suspended, e.g., for troubleshooting purposes; a mail server ID 216f identifying which of the mail servers 190 will be used to deliver the e-mail earning invitations in this job; a text message



ID 216g which links to an entry in a message table (described in greater detail below) specifying detailed information about the e-mail earning invitation to be sent to customers 20 who use a non-HTML-capable e-mail client for reading e-mail messages; an HTML message ID 216h which links to an entry in the message table specifying detailed information about the e-mail earning invitation to be sent to customers 20 who use an HTML-capable e-mail client for reading e-mail messages; and an SQL query 216i which is used to populate e-mail to customers 20 with data from the database 165. Also, the SQL query is used to identify customers 20 having accounts in the database 165 which will be targeted by the marketing campaign and to limit the number of messages sent to the number specified by the client count 216d.

Also as a part of the marketing campaign, the incentive award service creates one or more entries 218 in the above-mentioned message table in the post office database 184 as shown in FIG. 5. The message table entry 218 includes a message ID 218a corresponding to either the text message ID field 216g or HTML message ID 216h in the control table entry 216 of FIG. 4; a message type field 218b indicating that the e-mail earning invitation is either a text message or an HTML message; a message subject 218c and a message body 218d. The message subject 218c and the message body 218d are templates for the actual subject and body, respectively, of the e-mail message actually sent to the consumer 20; however, to permit customization they preferably include tags which are replaced with consumer-specific information before transmission to the consumer 20 as will be described in greater detail below.

Finally, as a part of the marketing campaign the incentive award service creates a number of entries 220 in a client mail table in the post office database 184 as shown in FIG. 6. Each entry 220 corresponds to a consumer identified by the SQL query 216i in the corresponding control table entry 216 and includes the job key 220a; the consumer's user ID 220b; a sent flag 220c which, when set, indicates that a message corresponding to that job has been sent; a received flag 220d which, when set, indicates that receipt of the message has been acknowledged by the consumer 20 in a manner described in greater detail below; a retry count 220e specifying the number of times retransmission of the message has been done; and a rejected flag 220f which, when set, indicates that the message was rejected by an e-mail server (for example, if no user with the given address exists on the server). Should other information about the consumer 20 be needed for processing the message, it can be extracted from the database 165 using the user ID 220b as a key.

Once the tables have been set up to support the marketing campaign, the issuer can set business rules and award rules specifying the amount and types of awards that can be earned in the campaign. To do this, the issuer 30 uses a toolbox 170 in the communication service 160 as shown in FIG. 7. Each toolbox 170 includes a toolbox web server 172 and is connected to the Internet 10 and a toolbox database 174 which stores the business rules, awards rules and temporary consumer account information such as point accruals, and transactions as will be described in greater detail below. Each toolbox 170 corresponds to one of issuers 30 and is used by that issuer 30 to control award point

distribution, thereby preventing abuse of the incentive award service by unregulated transactions. More specifically, an issuer 30 can set award rules for such things as:

- award description (primarily for internal tracking purposes);
- award type, e.g., ad banner, purchase, questionnaire, etc.
- 5    -- award frequency (how often points can be earned for responding to the award);
- start and stop dates; and
- award issuer URL, success URL.

The rules thus created are stored in the toolbox database 174. The issuer 30 uses the toolbox 170 to create award rules which specify the awards received by the consumers 20. The toolboxes 170 are preferably resident on computer systems under the control of the incentive award service so that the issuers 30 are not unduly burdened with supporting them, and the issuers 30 preferably access their toolboxes over the Internet and develop rules using a web browser displaying HTML forms and the like.

The post office 180 is in charge of scheduling e-mail advertising campaigns for issuers 30 and ensuring that earning invitations associated therewith are delivered to the appropriate consumers 20. As shown in FIG. 8, it does this by using the control table in its post office database 184 as described above. When a new entry is added to the control table, the post office 180 assigns the new job identified therein to one of the mail servers 195 based on information it maintains about the loading of the mail servers 195. For example, the post office may maintain a list of the jobs currently being run by each of the mail servers 195 and an estimate of when each is expected to be completed. In that case, the post office 180 can assign the new job to an idle mail server 195 or the mail server 195 which will become idle soonest. Alternatively, the post office 180 may poll the mail servers 195 on their status (or the mail servers 195 can automatically provide periodic reports to the post office 180), and that information may be used by the post office 180 in scheduling jobs.

Once the post office 180 identifies which mail server 195 will be used to executes delivery of messages in the job, it writes this information to the mail server ID field 216f of the appropriate control table entry 216. Then, periodically a dispatcher process 197 in each mail server 195 accesses the post office database 184 to see if any new jobs for it have been added as indicated by the mail sever ID 216f in each control table entry 216. If there is a new job for a mail server 195, it accesses the database 165 based on the corresponding entries in the client mail table 220 and generates messages using the message subject and body fields 218c and 218d in the message table entry 218, replacing tags by extracting consumer information from database 165 where necessary. For example, when the message type field 218b specifies a text message, the message body field 218d might include the code fragment

```
POINTENTIALS--January 1999 Edition
Dear <_&getUserName_>,
Happy New Year!
```

which would extract the consumer's first name (e.g., Joe) from the database 165 and include the string  
POINTENTIALS--January 1999 Edition

Dear Joe,

Happy New Year!

- 5 in the final message. When the message type field 218b specifies an HTML-formatted message, the message body field 218d might include the code fragment

```
Dear <_&getUserName_>, <BR><BR>  
<FONT SIZE="+1" COLOR="#FF0000">  
Happy New Year!</FONT><BR><BR>
```

- 10 which would produce a similar result.

Once the message has been generated, the mail server 195 sends it to the consumer 20. Thus, rather than creating large batch files of messages to be sent as described in the Related Art section, this embodiment generates each message individually and "on the fly".

- 15 The consumer 20 may acknowledge receipt of the message by replying to it. Little action is required on the part of the consumer 20 other than clicking on her e-mail client's "Reply" button, since the subject line includes an encrypted string which, when decrypted by mail server 195, identifies the consumer 20 and the job to which the consumer is responding. The reply message is received by the mail server 195 and a receiver process 199 therein sets the received flag 220d in the corresponding client mail table entry 220 to show that the consumer 20 has responded to the message  
20 and notifies the appropriate toolbox 170 so that points can be awarded accordingly.

- Alternatively, if the consumer's e-mail client is relatively sophisticated and capable of handling more sophisticated e-mail formattings (such information preferably having been previously collected and stored in database 165), other response mechanisms are possible. For example, if the e-mail client is capable of generating active URLs in the displayed message, i.e., a field in the e-mail  
25 message which, when clicked on, sends a message to an address designated therein using a designated protocol (typically HTTP), such a field can be provided and the user can click on it rather than replying to the e-mail message directly. In this case, the URL preferably embeds parameter information identifying the consumer 20 as described in United States Patent Application No. 09/126,219 to Smith et al. filed on September 17, 1998 and entitled "System and Method for  
30 Remotely Providing User Information Without User Intervention", incorporated herein by reference. URLs can also be used with e-mail clients that do not display active URLs if the consumer 20 is known or assumed to have WWW access by prompting the user to cut the URL from the e-mail message and paste it into the browser (or simply type it in).

- If the e-mail client is capable of handling HTML-formatted messages such as the one shown in  
35 FIG. 9, the message can also include an active URL or an HTML form button such as a "Submit" button which performs the same function. In these cases where the consumer 20 responds using the HTTP protocol, the response need not be directed to the mail server 195 which sent the message and

may instead go to one of the web servers 190, since they are better configured for handling such traffic (in fact, in the preferred embodiment web pages served by web servers 190 and HTML-formatted e-mail messages sent by mail servers 195 are so similar that the same database entries can be accessed to generate both). In that case, point awarding and the like may be accomplished as described in the above-referenced Bistriceanu et al. application.

Thus, in a broad sense the preferred embodiment may be seen as a system which can deliver messages using both "client pull" technology in the form of serving web pages and "client push" technology in the form of sending e-mail messages. Client pull technology requires little in the way of scheduling, dispatching and the like since information is delivered at the request of the recipient. In contrast, since client push messages are sent independently of the recipient, the need for such functionality is accommodated by the post office.

Variations on the above invention will be readily apparent to those skilled in the art. For example, although in the preferred embodiment all database accesses are performed according to Oracle standards, numerous other formats could be used. In fact, although the preferred embodiment uses the post office and mail servers in connection with a web page delivery system generally described in the above-referenced Bistriceanu et al. application, it may be used independently to communicate with any database adhering to the appropriate protocols to provide a selective, high-volume, scalable e-mail generation and delivery system.

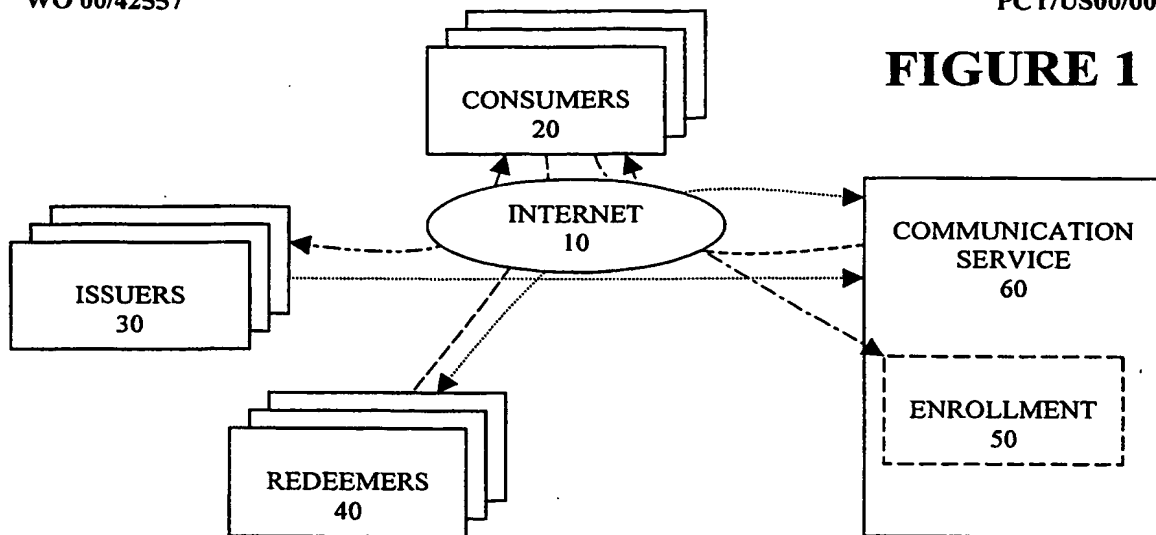
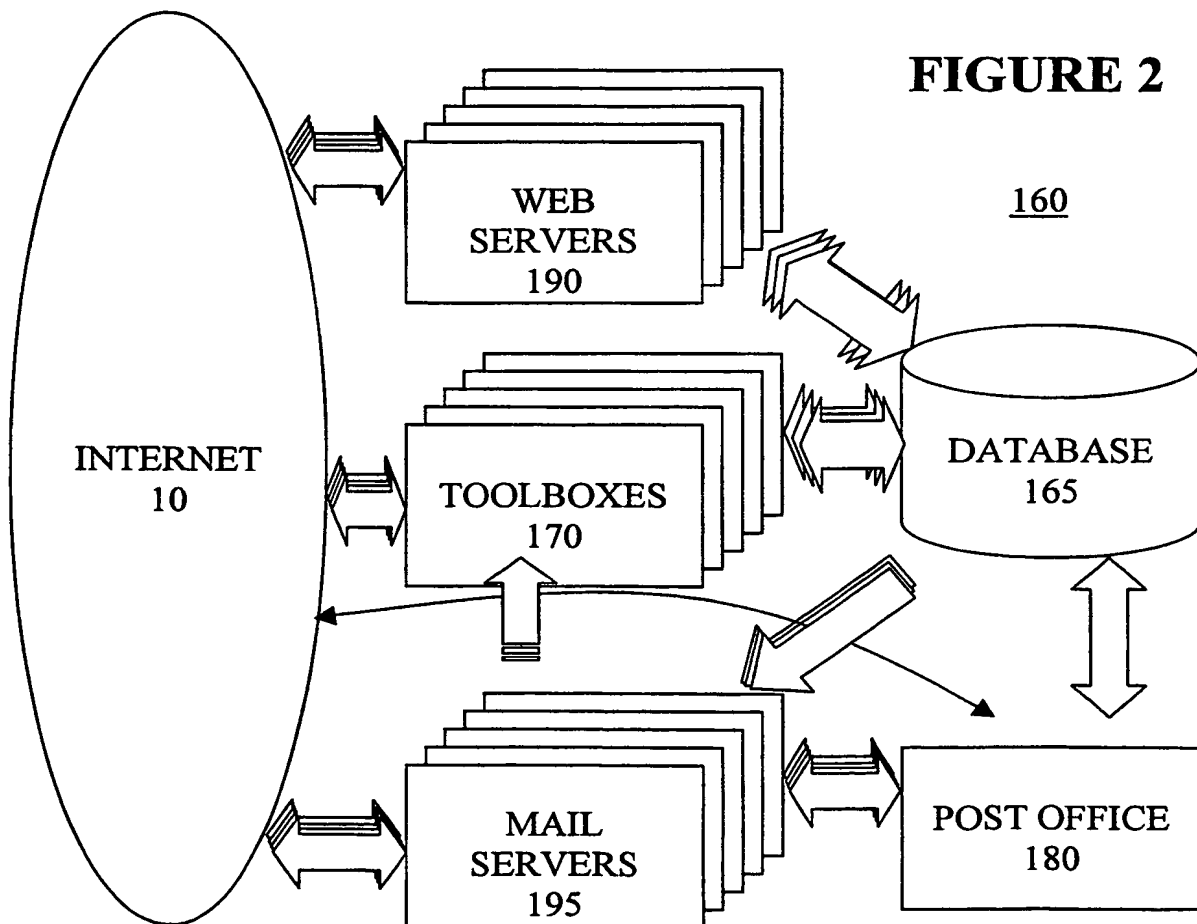
Also, although FIG. 1 shows toolboxes 170 as separate processes, they need not be located on separate physical computer (although this is of course possible). If the level of traffic associated with several of the issuers 30 and their toolboxes 170 is relatively low, they may all be implemented on the same computer system. Alternatively, if one issuer 30 has an extremely high level of traffic, its toolbox may be distributed over several computers in a manner apparent to those skilled in the art. In fact, although in this embodiment the toolboxes 170 are preferably implemented on computer systems under the physical control of the incentive award service, they need not be and can instead be resident on systems controlled by the issuers 30. In this case, communication between the toolboxes 170 and other system components can be done over the Internet. The web servers 190 and mail servers 195 can be similarly distributed. Further, although the Internet has been used as the preferred communications network in the preferred embodiment, other networks such as proprietary networks, intranets, LANS and WANs and the like may of course be used.

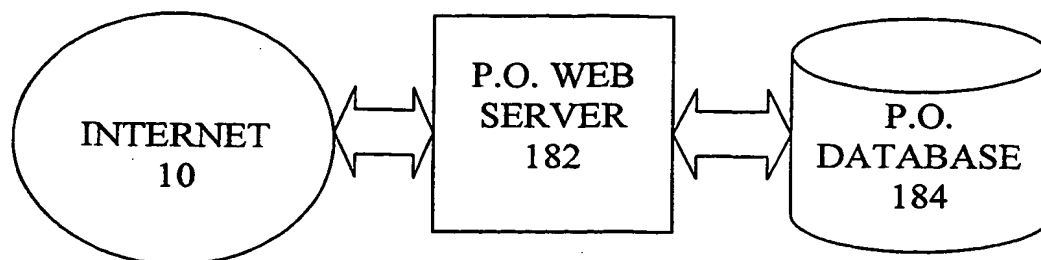
Such variations are within the spirit of the present invention and are to be considered as falling within the scope of the appended claims.

**WHAT IS CLAIMED:**

1. An electronic communication system comprising:
  - a database having information relating to a plurality of clients stored therein;
  - a post office for storing user information identifying the information in the database relating to selected ones of the clients, message information describing a message to be electronically sent to at least one of the selected clients, and server information designating one of a plurality of mail servers to be used for sending the message;
  - wherein each of the mail servers is for, responsive to the server information, accessing the database based on the client information to extract information therefrom, and sending the message to the selected clients based on the extracted information.
2. The system of claim 1, wherein:
  - the post office includes control information specifying constraints on sending the message including the server information, message information specifying content of the message, and client information specifying characteristics of a message sent to a particular client.
3. The system of claim 2, wherein:
  - the control information further includes format information indicating whether a message to be sent based thereon is in one of a plurality of formats; and
  - the mail servers selectively send messages to the clients based on the format information.
4. The system of claim 2, wherein:
  - the control information further includes selection information specifying criteria by which clients having information stored in the database are selected for message sending; and
  - the selection information is used to generate the client information.
5. The system of claim 2, wherein the message information includes:
  - a first portion duplicated in messages sent to clients by the mail servers; and
  - a second portion indicative of information relating to clients in the database to be used in the messages sent to the clients.
6. The system of claim 5, wherein the mail servers access the database to extract the information relating to clients for use in messages sent to the clients based on the second portion.
7. The system of claim 6, wherein the mail servers replace the second portion with the extracted information.

8. The system of claim 1, wherein the post office is for setting the server information based on statuses of the plurality of mail servers.
9. The system of claim 1, wherein the mail server comprises a dispatcher for accessing the post office and sending messages to clients when the server information designates that mail server.
10. The system of claim 1, wherein each mail server comprises a receiver for receiving a message from a client responsive to a message sent thereto and generating an indication thereof.
11. The system of claim 10, wherein the post office modifies the client information responsive to the message from the client responsive to the message sent thereto.
12. The system of claim 1, further comprising:
  - a plurality of web servers for, responsive to a request from a client, accessing the database to extract information relating to that client from the database, generating a web page based thereon, and serving it to the client; and
  - a plurality of toolboxes for setting criteria for rewarding users for interacting with message sent to them by at least one of the mail servers and the web servers;
  - wherein at least one of said toolboxes and said database maintains information indicative of rewards received by the users.
13. The system of claim 12, wherein each mail server comprises a receiver for receiving a message from a client responsive to a message sent thereto and generating an indication thereof; and
  - the toolbox modifies information it maintains representative of rewards received by that user based on the indication.
14. The system of claim 13, wherein the toolboxes are for periodically exchanging information representative of rewards received by users with the database.

**FIGURE 1****FIGURE 2**

**FIGURE 3**

| JOB<br>KEY | START<br>DATE | STOP<br>DATE | CLIENT<br>COUNT | SUSP.<br>FLAG | M.S.<br>ID | TEXT<br>MSG ID | HTML<br>MSG ID | SQL  |
|------------|---------------|--------------|-----------------|---------------|------------|----------------|----------------|------|
| 216a       | 216b          | 216c         | 216d            | 216e          | 216f       | 216g           | 216h           | 216i |

**FIGURE 4**216

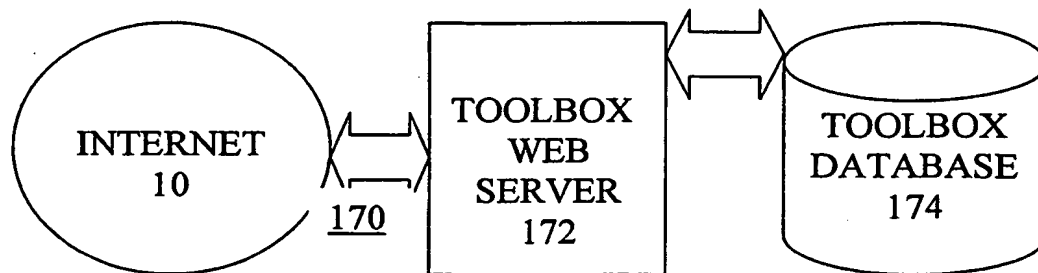
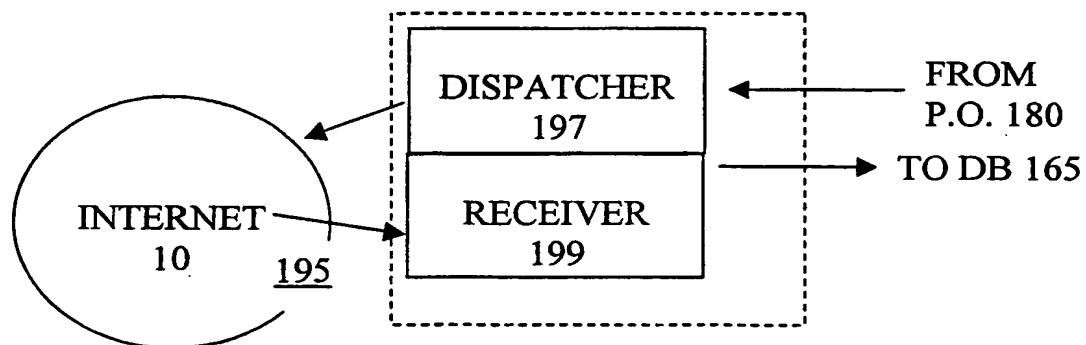
| MSG ID | MSG TYPE | MSG SUBJECT | MSG BODY |
|--------|----------|-------------|----------|
| 218a   | 218b     | 218c        | 218d     |

**FIGURE 5**218

| JOB KEY | USER ID | SENT FLAG | REC'D<br>FLAG | RETRY<br>COUNT | REJECT |
|---------|---------|-----------|---------------|----------------|--------|
| 220a    | 220b    | 220c      | 220d          | 220e           | 220f   |

**FIGURE 6**220



**FIGURE 7****FIGURE 8**

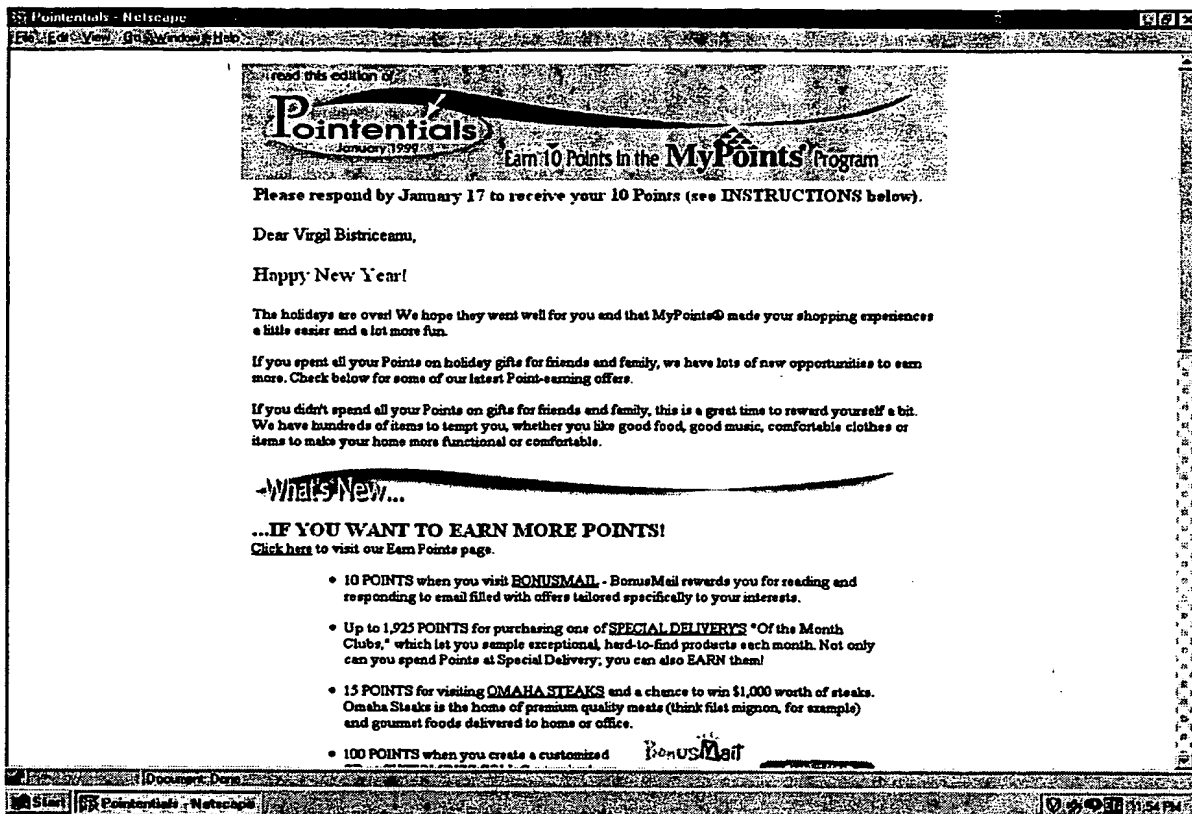


FIGURE 9